

Using Nexus-II with SkyTools

This document describes how to setup your Nexus-II with your computer running SkyTools using default factory settings.

System requirements:

- Nexus-II
- Nexus-II configuration utility – download from the Downloads/Software Updates of our website [here](#)
- A Windows based computer running SkyTools from <https://skyhound.com>

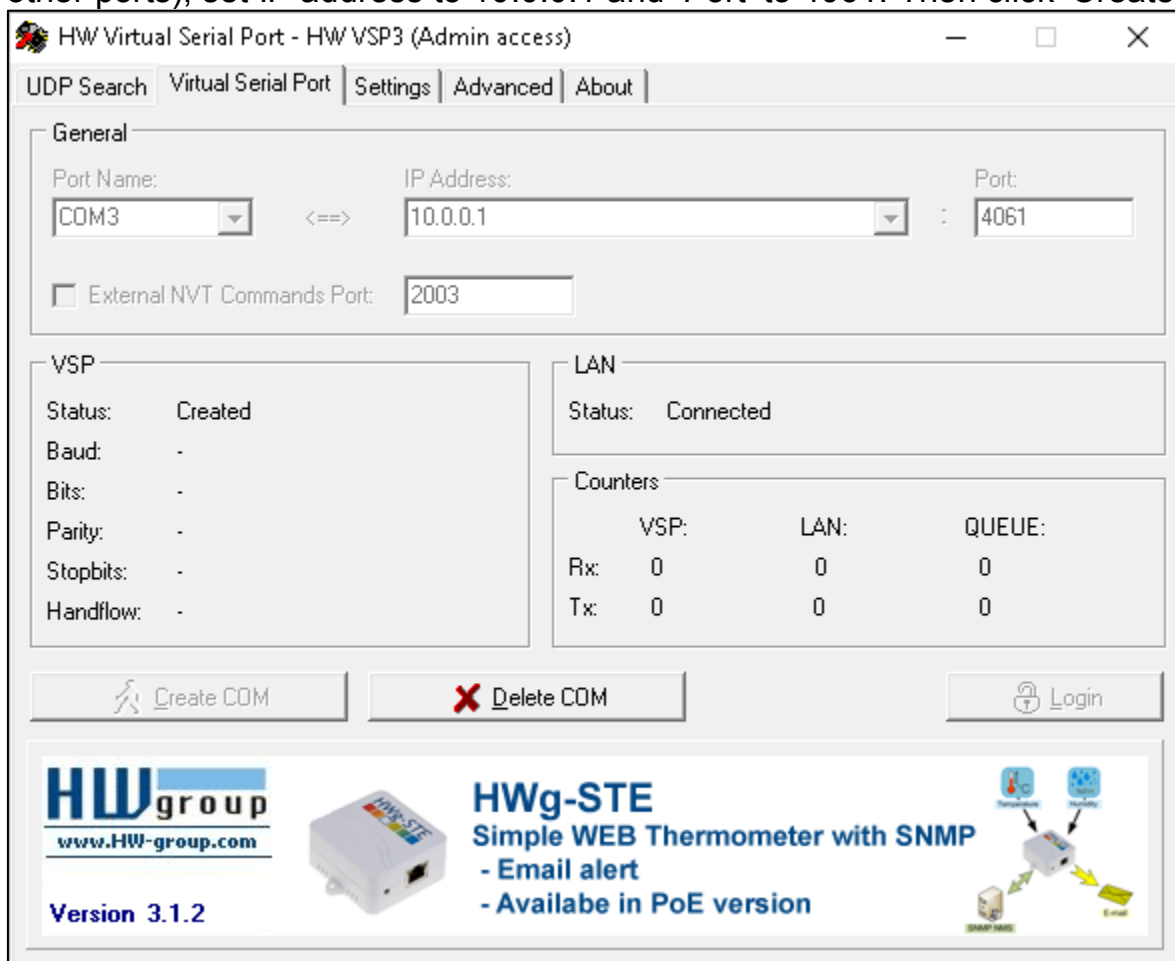
Initial setup

As SkyTools only supports a serial connection you will need to install a special utility that creates a virtual COM port that is connected to Nexus-II.

HW VSP3 utility is used in this guide. It is free for personal use and can be downloaded from:

http://www.hw-group.com/products/hw_vsp/index_en.html

Install and run the utility and select 'Virtual Serial Port' tab. Click on the 'Login' button and then select a 'Port Name' (use COM3-COM8 for software that cannot access other ports), set IP address to 10.0.0.1 and 'Port' to 4061. Then click 'Create COM'



Please make sure that 'Status' says 'Created'. In case of an error just click 'Delete COM' then select another 'Port Name' and try again.

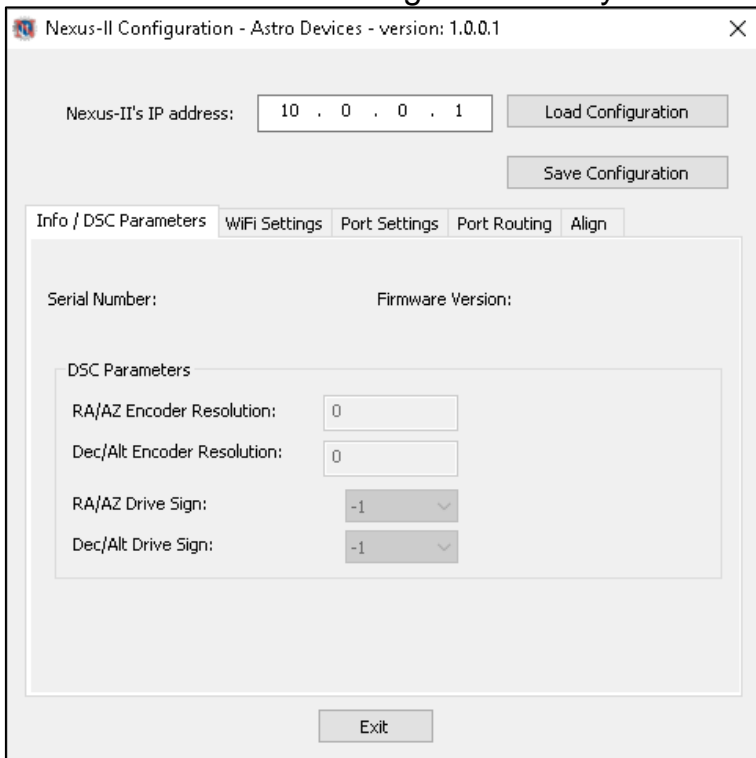
Please take a note of the name of the 'Port Name' as it is necessary to use that name

later on.

You can also use another utility from:

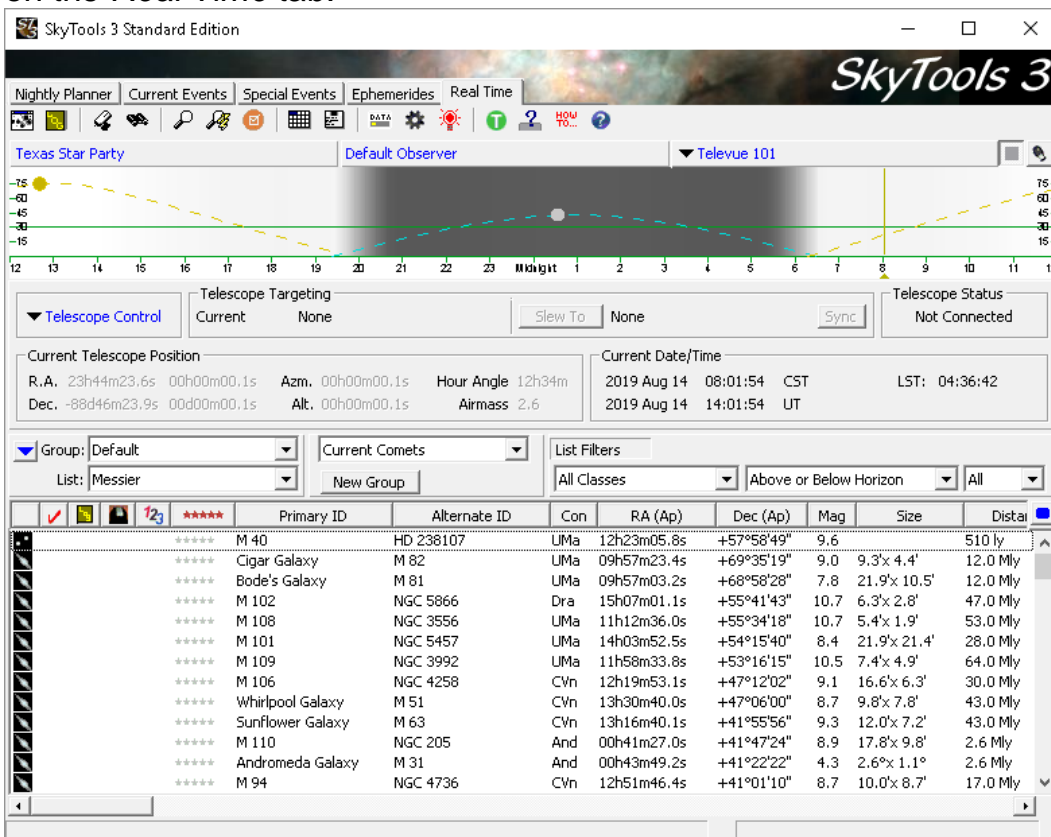
<http://www.astrogeeks.com/AstroGeeks/COM2TCP/index.html>

Next install Nexus-II Configuration utility and run it:




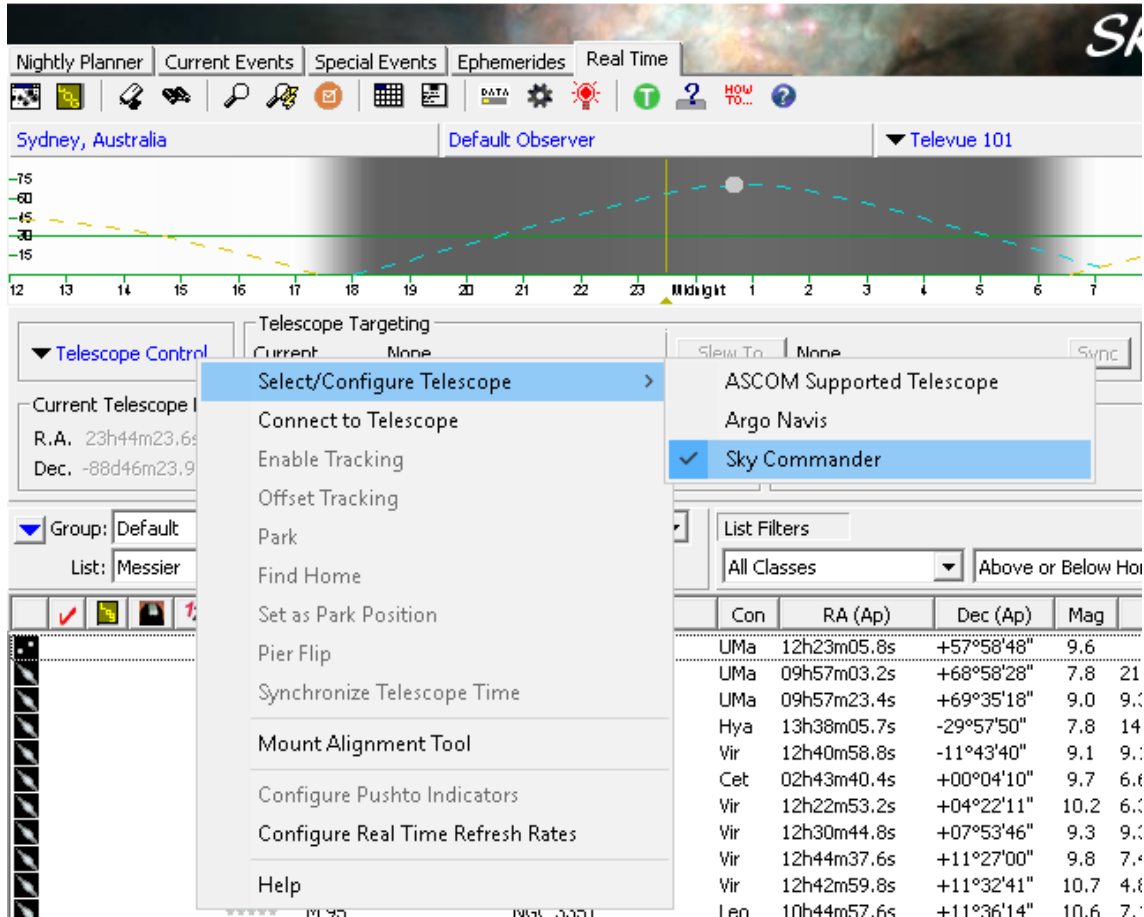
Click on *Port Routing* tab and then click on the *Load Configuration* button and verify that TCP port number 4061 is set to *SkyCommander*.

Next you will need to setup SkyTools to work with Nexus-II. Start SkyTools and click on the *Real Time* tab:

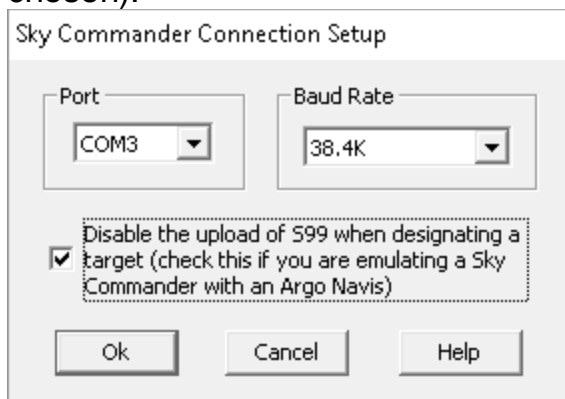


Click on *Telescope Control*->*Select/Configure Telescope*->*SkyCommander*.

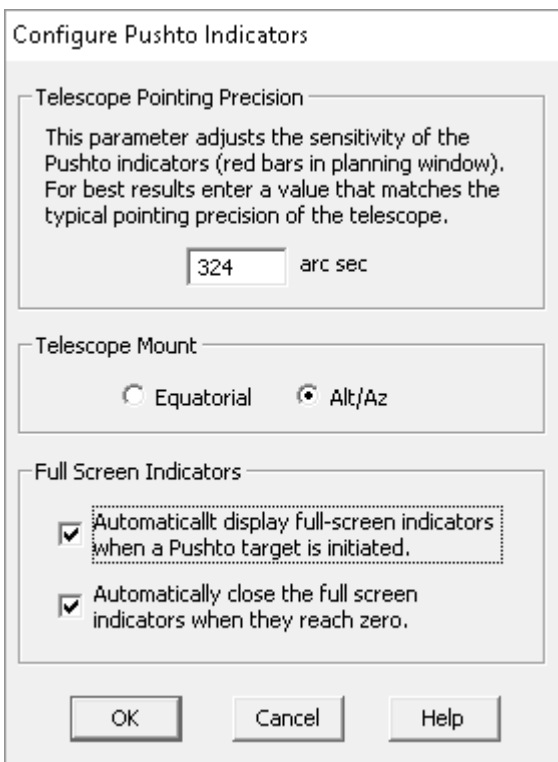
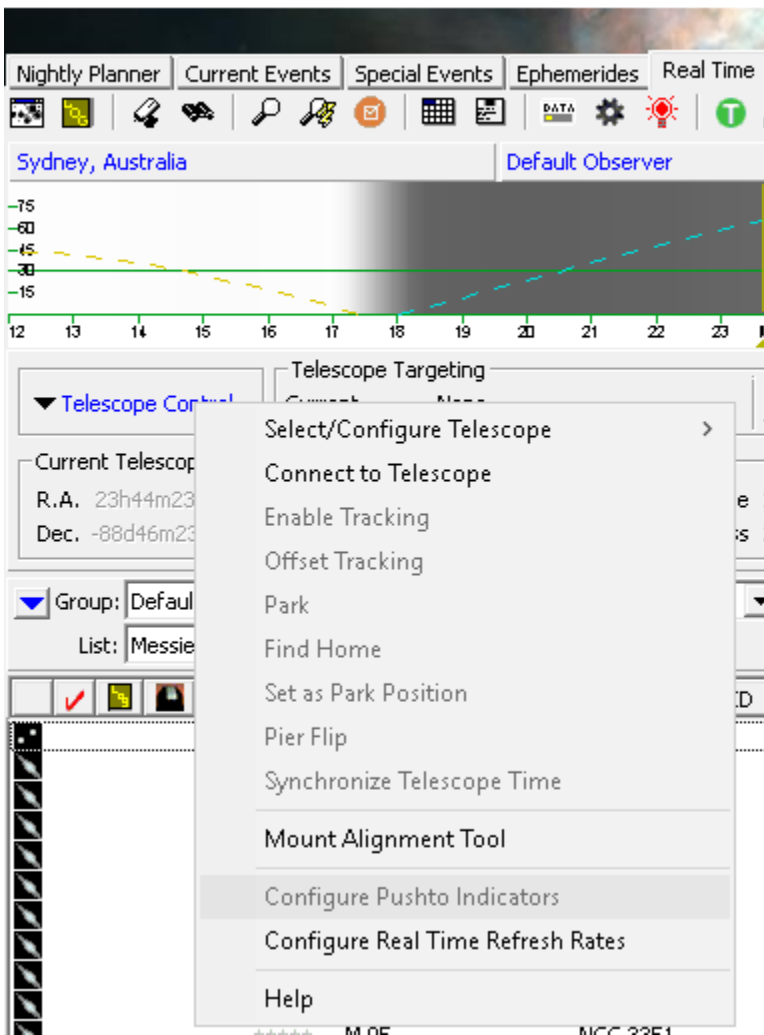
 SkyTools 3 Standard Edition



Then select click on the *Port* drop down list and select the COM port number that you created in HW VSP 3 utility. The *Baud Rate* can be set to any value (here 38.4K was chosen):



You can also configure indicators for the Push-To operation by clicking on *Telescope Control*->*Select/Configure Telescope*->*Configure Pushto Indicators*:



The setup is now complete.

Using Nexus-II with SkyTools

In order for SkyTools to operate with Nexus-II it is necessary to perform a two star alignment of Nexus-II.

Start Nexus-II configuration utility and click on the *Align* tab:

Nexus-II Configuration - Astro Devices - version: 1.0.0.1

Nexus-II's IP address: 10 . 0 . 0 . 1

Info / DSC Parameters WiFi Settings Port Settings Port Routing **Align**

Current Encoders' Position

Az / RA: 0 0

Alt / Dec: 0 0

DSC Parameters

RA/AZ Encoder Steps: 311296

Dec/Alt Encoder Steps: 311296

Align

Alt Reference: 90° Alignment Error:

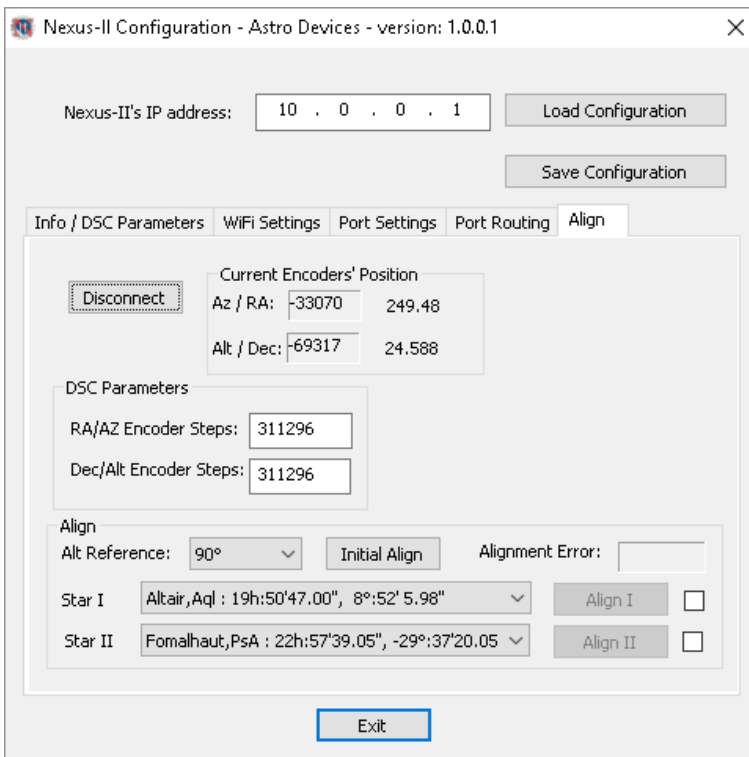
Star I Altair,Aql : 19h:50'47.00", 8°:52' 5.98"

Star II Fomalhaut,PsA : 22h:57'39.05", -29°:37'20.05

You need to set the *RA/AZ Encoder Steps* and *Dec/Alt Encoder Steps* to values corresponding to the resolutions of encoders installed on your telescope. Here they are both set to 311296 steps. You may also need to change the sign in front of the encoder steps. Join Nexus-II's WiFi network on your computer and once your computer has joined the network click on the *Connect* button.

Then rotate the telescope clockwise in azimuth only and watch *Ra / Az* value in the second column of *Current Encoders' Position* – if it is decreasing then you need to put a negative sign in front of *RA/AZ Encoder Steps*.

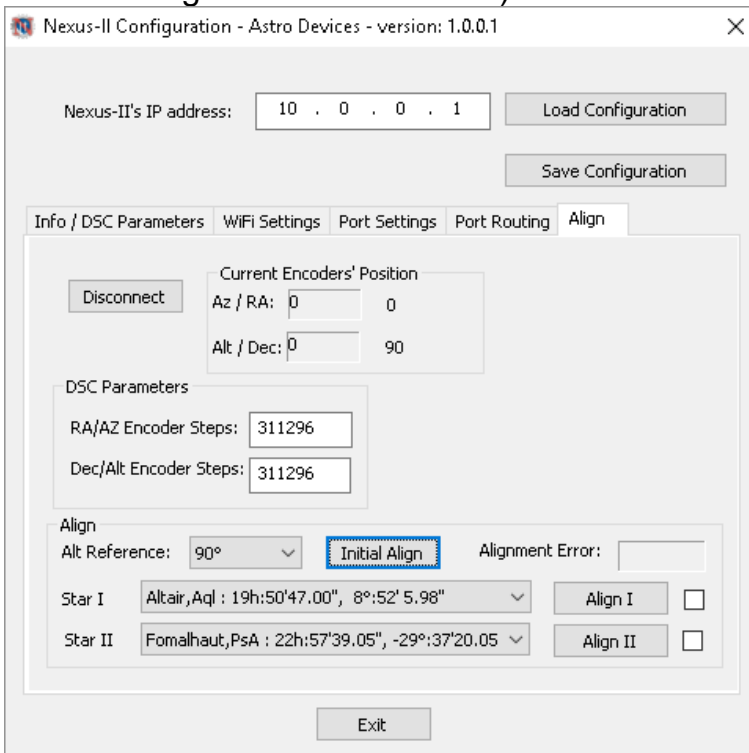
Now move the telescope up and watch *Alt / Dec* value in the second column of *Current Encoders' Position* – if it is decreasing then you need to put a negative sign in front of *Dec/Alt Encoder Steps*.



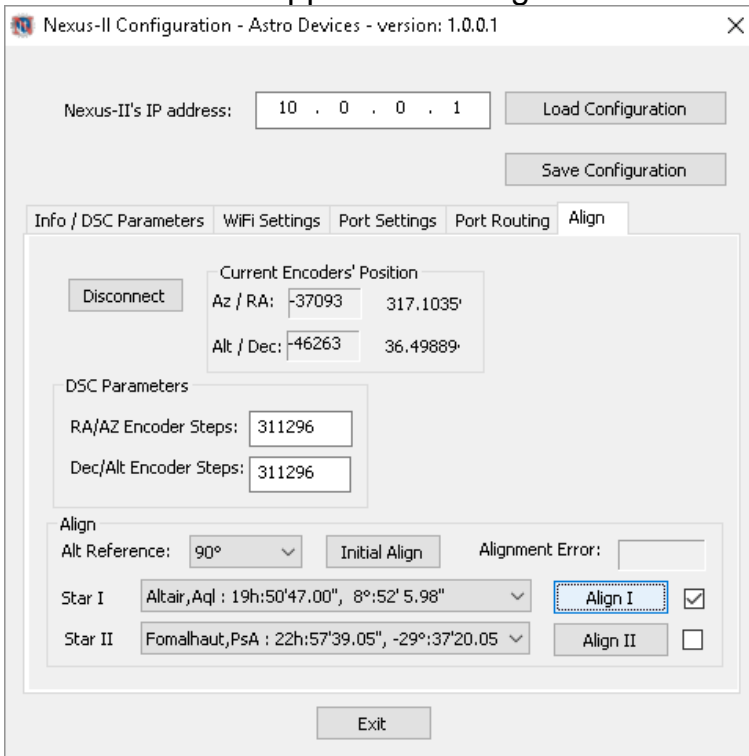
Note: Nexus-II Configuration utility remembers the encoder steps and their signs so it is only required to do the above test only once.

Now you need to pick two stars that you will use to align Nexus-II on by clicking on *Star I* and *Star II* drop down lists. Please use stars that are currently between 30° and 70° in altitude and separated by at least 60° in azimuth.

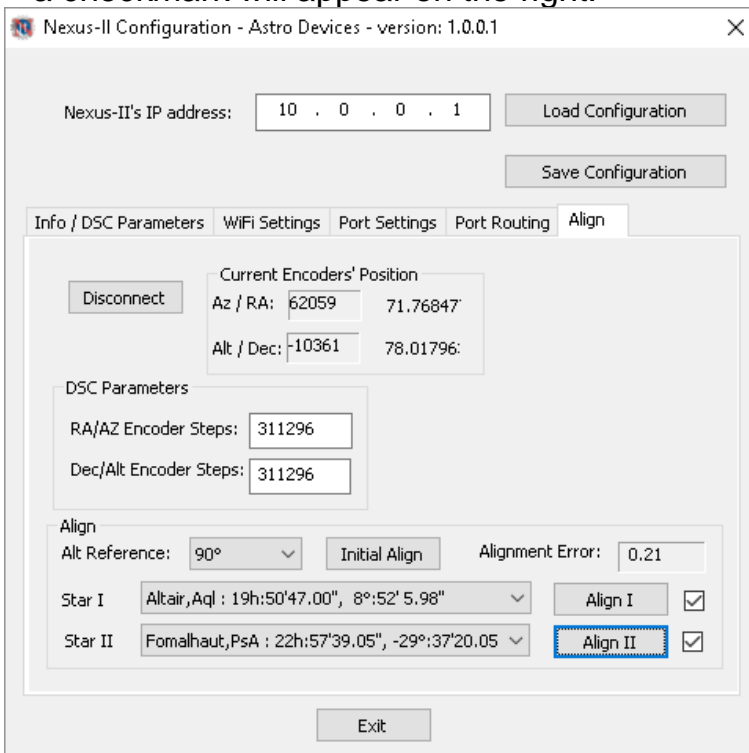
Position the telescope vertically (or horizontally if *Alt Reference* is set to 0°) and click on *Initial Align* button (the telescope does not need to be positioned precisely at the selected angle - $\pm 5^\circ$ is sufficient):



Now point the telescope at the star selected in *Star I* and click on the *Align I* button – a checkmark will appear on the right:



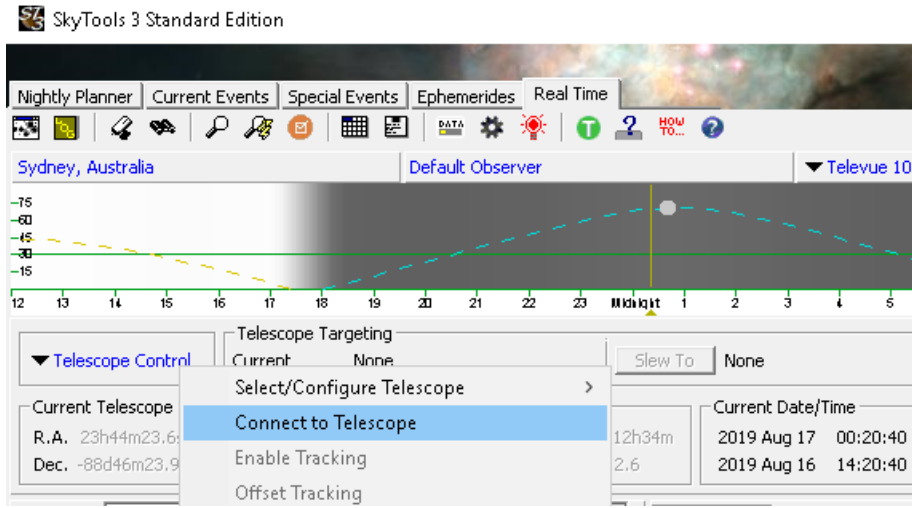
Now point the telescope at the star selected in *Star II* and click on the *Align II* button – a checkmark will appear on the right:



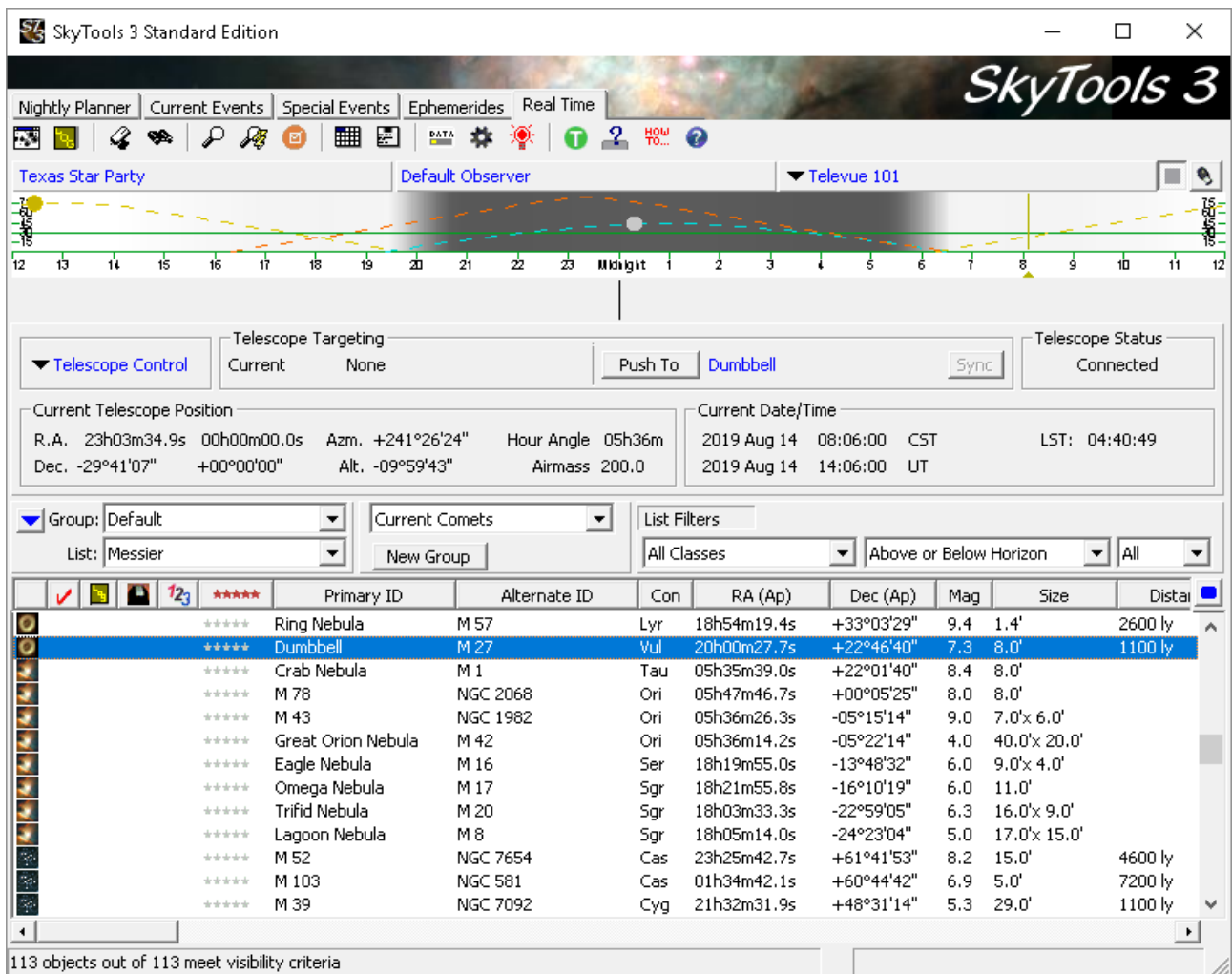
Please take a note of the *Alignment Error* – it should be less than ~5.0. If the value is greater than 5.0 then check that the telescope was pointed at the correct stars – if it was not pointed at the selected star you can re-do the alignment.

Now Nexus-II is now aligned and can calculate the current telescope position.

Start SkyTools and click on *Telescope Control*->*Connect to Telescope*.



You will see that the *Current Telescope Position* box now shows the telescope coordinates:



To point the telescope at an object you need to select an object in the list below and then click on the *Push To* button:

The screenshot shows the SkyTools 3 Standard Edition interface. At the top, there are tabs for 'Nightly Planner', 'Current Events', 'Special Events', 'Ephemerides', and 'Real Time'. Below these are various icons and a search bar. The location is set to 'Sydney, Australia' and the observer is 'Default Observer'. The telescope is identified as 'Televue 101'. A graph shows the telescope's path over a 24-hour period. Below the graph, there are controls for 'Telescope Control' and 'Telescope Status'. The 'Current Telescope Position' is displayed as R.A. 19h41m02.6s +08°01'01", Azm. +322°48'03", Hour Angle 02h10m, Dec. +16°12'08" -03°36'22", Alt. +31°19'40", and Airmass 1.9. The 'Current Date/Time' is 2019 Aug 15 00:16:35 GMT+10, LST: 21:52:07. A table of objects is shown below, with 'Dumbbell' selected. The table has columns for Primary ID, Alternate ID, Con, RA (Ap), Dec (Ap), Mag, Size, and Distal.

Primary ID	Alternate ID	Con	RA (Ap)	Dec (Ap)	Mag	Size	Distal
M 106	NGC 4258	CVn	12h19m53.1s	+47°12'02"	9.1	16.6'x 6.3'	30.0 Mly
M 109	NGC 3992	UMa	11h58m33.8s	+53°16'15"	10.5	7.4'x 4.9'	64.0 Mly
M 101	NGC 5457	UMa	14h03m52.5s	+54°15'40"	8.4	21.9'x 21.4'	28.0 Mly
M 108	NGC 3556	UMa	11h12m36.0s	+55°34'18"	10.7	5.4'x 1.9'	53.0 Mly
M 102	NGC 5866	Dra	15h07m01.1s	+55°41'43"	10.7	6.3'x 2.8'	47.0 Mly
Dumbbell	M 27	Vul	20h00m27.7s	+22°46'40"	7.3	8.0'	1100 ly
Ring Nebula	M 57	Lyr	18h54m19.4s	+33°03'29"	9.4	1.4'	2600 ly
Little Dumbbell	M 76	Per	01h43m34.5s	+51°40'09"	10.1	2.7'	2400 ly
Owl Nebula	M 97	UMa	11h15m52.1s	+54°55'00"	9.7	3.4'	2000 ly
Lagoon Nebula	M 8	Sgr	18h05m14.0s	-24°23'04"	5.0	17.0'x 15.0'	
Trifid Nebula	M 20	Sgr	18h03m33.3s	-22°59'05"	6.3	16.0'x 9.0'	
Omega Nebula	M 17	Sgr	18h21m55.8s	-16°10'19"	6.0	11.0'	
Eagle Nebula	M 16	Ser	18h19m55.0s	-13°48'32"	6.0	9.0'x 4.0'	

If you configured *Push To Indicators* to show the offsets in full screen mode then you will be presented with the following:

The screenshot shows the full-screen 'Push To Indicators' interface. It features a dark background with a red crosshair in the center. Below the crosshair, the offset values are displayed in large red text: '007.4 +03.9'. The top of the screen is black, and the bottom shows a portion of the Windows taskbar.

Move the telescope until the values are both 0.0 – once they are zeros the telescope will be pointed at the selected object.

Done!

Please refer to SkyTools' help topics for more details on using the application.